MILITARY SPECIFICATION SHEET

WIRE, ELECTRIC, FLUOROCARBON/POLYIMIDE INSULATED LIGHT WEIGHT, NICKEL COATED COPPER, 600 VOLTS NOMINAL 4.6 MIL WALL

The complete requirements for wire described herein shall consist of this document and the issue in effect of specification MIL-W-81381.

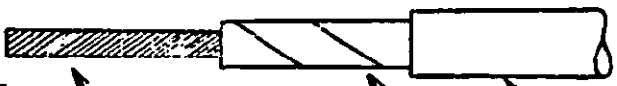

TABLE I CONSTRUCTION DETAILS

PART NUMBER 2/	CONDUCTOR			FINISHED WIRE			INSULATION 1/	
	SIZE	STRANDING	DIAMETER MAX. (INCHES)	MAX. RES. AT 20°C (OHMS/ 1000 FT.)	DIAMETER (INCHES) (MIN.-MAX.)	WEIGHT MAX. (LBS/ 1000 FT)	ONE WRAP TAPE CODE	ONE WRAP MIN. % OVER-LAP
M81381/18-26-*	26	19/38	.020	42.2	.028-.030	1.3	.1-1-.1	67.0
M81381/18-24-*	24	19/36	.024	25.9	.032-.035	1.9		
M81381/18-22-*	22	19/34	.031	16.0	.038-.041	2.9		
M81381/18-20-*	20	19/32	.039	9.77	.046-.050	4.4		
M81381/18-18-*	18	19/30	.046	6.10	.055-.059	6.6		
M81381/18-16-*	16	19/29	.055	4.76	.062-.066	8.3		
M81381/18-14-*	14	19/27	.069	3.00	.075-.080	13.0		
M81381/18-12-*	12	37/28	.089	1.98	.094-.099	19.9		

1/ TAPE CODE

.1-1-.1: .1 MIL FEP-FLUOROCARBON RESIN; 1 MIL POLYIMIDE FILM; .1 MIL FEP-FLUOROCARBON RESIN

2/ *COLOR IDENTIFICATION NUMBER PER MIL-STD-681. OPAQUE DARK YELLOW SHALL BE DESIGNATED BY THE LETTER "N".

TABLE II PERFORMANCE DETAILS

PART NUMBER	DURABILITY TEST LOAD (GMS)	ABRASION RESISTANCE (PROCEDURE II)				BEND TESTING MANDREL DIA. (IN MAX)			TEST LOAD (LBS)	
		WEIGHT SUPPORT BRACKET	WEIGHT (LBS)	TENSION LOAD (LBS)	MINIMUM INCHES OF TAPE	LIFE CYCLE TEST	COLD BEND TEST	WRAP TEST	LIFE CYCLE TEST	COLD BEND TEST
M81381/18-26-*	100	A	.125	1	9	1/4	1/4	1/8	1/2	1/2
M81381/18-24-*	150								3/4	3/4
M81381/18-22-*										
M81381/18-20-*										
M81381/18-18-*				2	12	3/8	3/8	1/4	1	1
M81381/18-16-*										
M81381/18-14-*		B				1/2				
M81381/18-12-*						3/4	3/4	3/8	2	2

Part Number: The asterisk, *, in the part number shown in the tables shall be replaced with a color identification number in accordance with MIL-STD-681, to indicate the color desired.

Example: M81381/XX-20-9 Size 20 wire, white, without stripes or bands.
M81381/XX-20-93 Size 20 wire, base color white, with orange stripe or band.

PSC 6145

RATINGS:

Temperature Rating: 200°C (392°F) max conductor temperature

Voltage Rating: 600 volts (rms) at sea level

ADDITIONAL REQUIREMENTS:

Blocking: Oven temperature, 200 ± 2°C (392 ± 3.6°F)

Color: As specified in contract or order in accordance with MIL-W-81381

Flammability: Extinguishing time, 3 seconds (max); travel, 3 inches (max); no flaming of tissue paper

Humidity Resistance: 5 megohms-1000 ft, min insulation resistance after humidity exposure

Identification of Product: Required for sizes 22 and larger

Identification, Striping, or Banding Durability: 125 cycles (250 strokes) (min); see Table II for test load.

Impulse Dielectric Test: 100% test; impulse voltage as specified in MIL-W-81381

Insulation Resistance: 2500 megohms-1000 ft (min)

Lamination Sealing: Oven temperature, 230 ± 2°C (446 ± 3.6°F) for 48 hours

Life Cycle: Oven temperature, 230 ± 2°C (446 ± 3.6°F) for 500 hours

Minimum Wall Thickness: 4.3 mils

Polyimide Cure Test: Required

Propellant Resistance: Test not required

Resin Coating Durability: 250 cycles (500 strokes) (min ave), 200 cycles (400 strokes) (min single reading) of 6 readings; see Table II for test load.

Shrinkage: 0.031 inch (max) at 230 ± 2°C (446 ± 3.6°F)

Surface Resistance: 5 megohms - inches (min), initial and final readings

Thermal Shock: Oven temperature, 200 ± 2°C (392 ± 3.6°F)
Change in measurement, 0.031 inch (max)

Wet Dielectric Test: 2500 volts (rms)

NOTES:

(1) This wire is intended for use in electronic chassis hookup applications. It is also intended for use in bundles under a protective jacket for airframe interconnecting applications.

(2) This wire should not be subjected to hypergolic propellants.

Preparing Activity
Navy - AS
(Project No. 6145-N206)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE MIL-W-81381/18(AS) WIRE, ELECTRIC, FLUOROCARBON/POLYIMID INSULATED LIGHT WEIGHT, NICKEL COATED COPPER, 600 VOLTS NOMINAL 4.6 MIL WALL

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?

☐ YES ☐ NO (If "Yes", in what way?)

4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE

DD FORM 1 JAN 72 1426 REPLACES EDITION OF 1 JAN 66 WHICH MAY BE USED

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